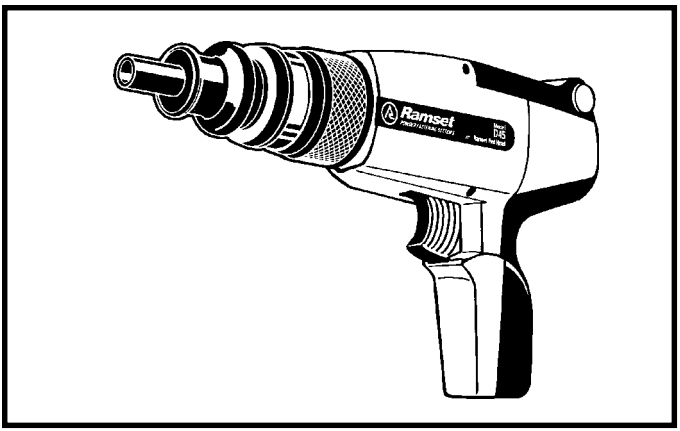
**DANGER**

**THIS TOOL FOR USE BY LICENSED OPERATORS ONLY.
READ AND OBEY ALL SAFETY AND OPERATING
INSTRUCTIONS BEFORE OPERATING TOOL.**

Ramset®
POWDER FASTENING SYSTEMS

# D45 TOOL

## OPERATOR'S SAFETY & OPERATING INSTRUCTION MANUAL



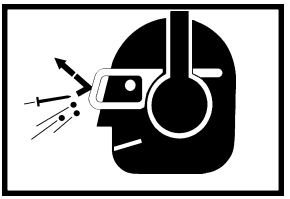

**SEMI-AUTOMATIC, LOW VELOCITY
PISTON TYPE FASTENING TOOL**

TW Ramset/Red Head

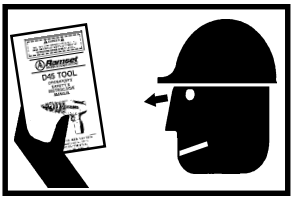
**DANGER**

**THIS TOOL IS TO BE USED ONLY BY PROPERLY TRAINED AND LICENSED OPERATORS.**
**YOU MUST SUCCESSFULLY COMPLETE ITW RAMSET/RED HEAD'S TRAINING PROGRAM FOR THE TOOL AND OBTAIN A CERTIFIED OPERATOR'S LICENSE BEFORE HANDLING, LOADING OR OPERATING THIS TOOL.**

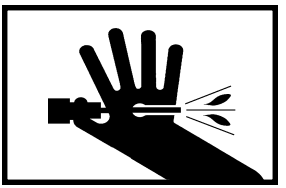
**ATTEMPTING TO HANDLE OR OPERATE THIS TOOL WITHOUT PROPER TRAINING AND LICENSING CAN RESULT IN SERIOUS INJURY TO THE OPERATOR OR BYSTANDERS.**

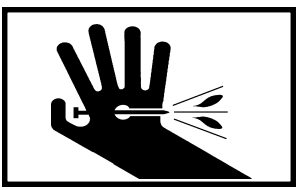


**Operator's and bystanders must wear eye and hearing protection.**




**Read manual before operating tool.**





**Never close tool with hand over fastener loading end of the tool. A serious hand injury from penetration by the piston or a discharged fastener could result.**

**DANGER**

Just as no one can merely read a book about driving an automobile and then hope to drive one safely, no one should attempt to use any Ramset tool without adequate, competent personal instruction. And just as one must be licensed to drive an automobile, one must also be licensed to use a powder actuated tool.
No automobile instruction book or instructor can forewarn a learner against all possibilities and emergencies, nor can ITW Ramset/Red Head instructors and printed material detail all possible conditions surrounding the use of ITW Ramset/Red Head tools and products.
**Responsibility for the safe and proper use of this tool rests with the tool user and the employer.**

## Preparation

### Acceptable Base Materials

**Powder actuated fastening is suitable for use in the following base materials only:**

- **Poured Concrete**
- **Structural Steel**
- **Masonry Joints ( see page 8)**

**Never attempt to fasten into any other type of material.** *Fastening into other materials can cause blindness or other serious injury.*

### Unacceptable Base Materials

**Never attempt to fasten into very hard or brittle materials such as cast iron, tile, glass, or rock of any type.** *These materials can shatter, causing the fastener and/or base material fragments to fly free and cause serious injury to the tool operator and others.*

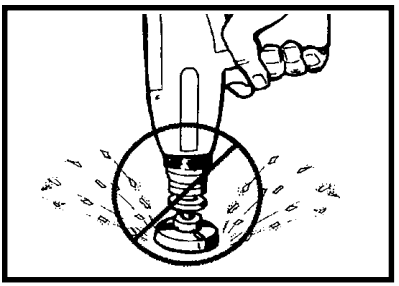
**Never fasten into soft base materials, such as drywall or lumber products.** *These materials may allow the fastener to travel completely through and out the other side, endangering those in the path of the fastener.*

**Never fasten into any base material that does not pass the Center Punch test.** *Failure to assure the suitability of the base material can result in serious injury to the eyes or other body parts.*

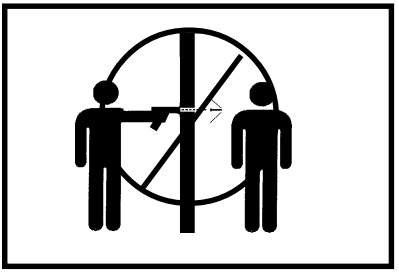
## Center Punch Test

**ALWAYS WEAR SAFETY GOGGLES WHEN PERFORMING THIS TEST.**

1. **Always check the material being fastened into for hardness before attempting any fastening operation.**
2. **Using a fastener as a center punch, strike the fastener against the work surface using an average hammer blow and check the results.**



**NEVER FASTEN INTO VERY HARD OR BRITTLE MATERIALS**



**NEVER FASTEN INTO SOFT MATERIALS SUCH AS DRYWALL**

### Center Punch Test Results

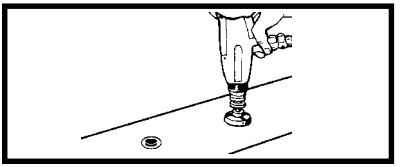
1. **If the fastener point is flattened, the material is too hard for a powder actuated fastening.**
2. **If the fastener penetrates the material easily, the material is too soft.**
3. **If the material cracks or shatters, the material is too brittle.**
4. **If the fastener makes a small indentation into the material, the material is suitable for fastening.**

## Loads & Load Selection Safety

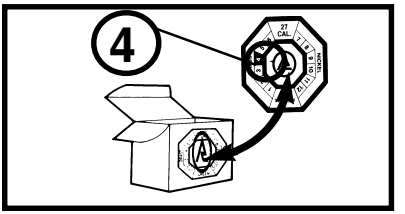
1. **Always make a test fastening after being sure that the base material is suitable for powder actuated fastening.** *Failure to determine the correct power level to be used may result in the use of excessive power, allowing the fastener to pass completely through the work material, causing serious or fatal injuries to others who may be in the path of the fastener.*
2. **Color-blind operators must always select disc loads by number to prevent use of an incorrect load for the same reasons as in #1 above.**

## Workplace Safety

1. **Operators and bystanders must always wear approved safety goggles and approved hearing protection.** *Failure to do so may result in blindness or serious eye injury from flying debris and loss of hearing from constant or repeated unprotected exposure to fastening noise.*
2. **Always keep the work area clear of bystanders and unnecessary materials that could interfere with safe tool operation.** *Operating the tool in a congested or cluttered area may affect your ability to operate the tool safely.*
3. **Never operate tool if flammable or explosive materials are nearby.** *Powder loads burn and create sparks when fired and could ignite these materials or fumes.*
4. **Always post warning signs within 50' of the area where fastening is to be done. Sign must state: "Caution- Powder Actuated Tool In Use".** *Failure to warn others may result in serious injury to them. Contact ITW Ramset/ Red Head at 1-800-354-7432 to obtain this sign.*



**ALWAYS MAKE A TEST FASTENING**




**COLOR-BLIND OPERATORS MUST ALWAYS SELECT LOADS BY NUMBER**

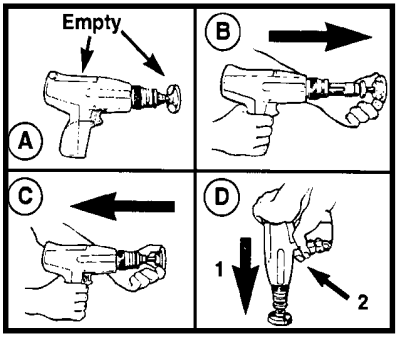
**KEEP WORK AREA CLEAR OF BYSTANDERS AND CLUTTER**

**NEVER OPERATE TOOL AROUND FLAMMABLE OR EXPLOSIVE MATERIALS**

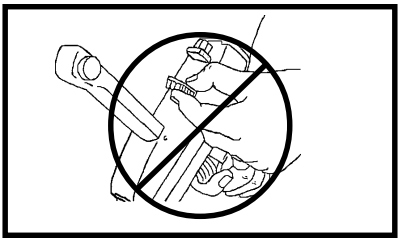
**ALWAYS POST WARNING SIGNS**

## Tool Handling Safety

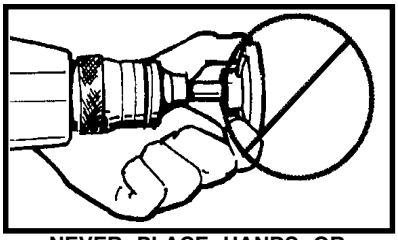
1. **Always be sure tool is operating properly before attempting to use it. Follow the "Daily Function Check" shown to the right and described on page 9.**
2. **Always load tool using a disc load selected directly from a box indicating the power load type and number. Never attempt to use loose disc loads that could be mis-identified.**
3. **Never carry loose disc loads in pockets with pins or other hard objects.**
4. **Never load a tool unless you intend to immediately make a fastening.** *Loading a tool and leaving it unattended in the work area can result in the tool being accidentally discharged by others.*
5. **Never place your hand or any other body part over the fastener loading end of the tool.** *Serious hand injury could result from being struck by either a fastener or the tool piston should the tool be accidentally fired.*
6. **Always store the tool unloaded and keep the tool and the loads securely locked in a tool box. Keep keys away from children and unlicensed persons.**
7. **Always keep the tool pointed away from yourself and others.**
8. **Never carry a loaded tool around the work area.**
9. **Never allow anyone not trained to use the tool.**
10. **Never engage in horseplay with the tool.**
11. **Using the tool in poorly ventilated areas, cleaning tool or handling loads may result in exposure to lead or other substances known to cause birth defects, and other physical harm. Have adequate ventilation at all times and wash thoroughly after exposure.**



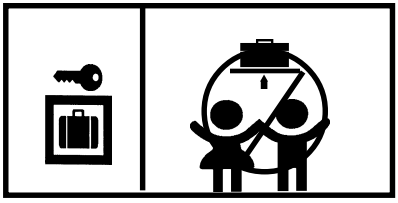

**ALWAYS DO A DAILY FUNCTION CHECK BEFORE LOADING THE TOOL**



**NEVER LOAD TOOL UNLESS IT IS TO BE USED IMMEDIATELY**



**NEVER PLACE HANDS OR BODY OVER MUZZLE OPENING**



**KEEP TOOL LOCKED & OUT OF THE REACH OF CHILDREN**

**FAILURE TO FOLLOW INSTRUCTIONS CAN CAUSE INJURY TO THE TOOL OPERATOR OR TO BYSTANDERS.**

## Fastener Driving Safety

1. **Only use the tool for fastening into a suitable base material.**

2. **Never fire the tool without a fastener.** *Firing a tool without a fastener will cause the piston to strike the work surface, and may cause serious injury to you and others in the work area.*

3. **Always use the spall guard whenever possible to minimize flying particles or debris.**

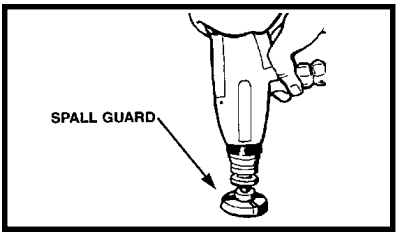
4. **Always hold the tool perpendicular to and firmly against the work surface when making a fastening.** *Failure to do so could allow a fastener to ricochet.*

5. **Never attempt to drive a fastener close to an edge or to another fastener.** *See page 8 for guidelines.*

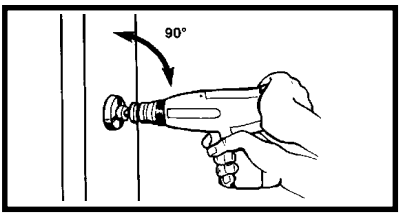
**ALWAYS FOLLOW THE MISFIRE PROCEDURE**

**If the tool does not fire after pulling the trigger, continue to hold the depressed tool against the work surface for at least 30 seconds.** Then carefully open the tool, remove the load disc, and put it in a can of water or other non-flammable liquid. Never carelessly discard a disc with live loads into a trash container.

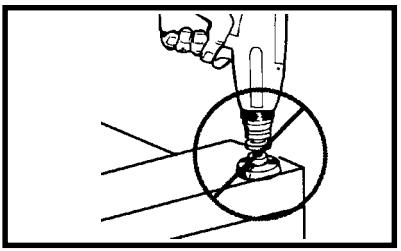
**If the tool becomes stuck or jammed with a live powder load,** keep the tool pointed in a safe direction, and immediately tag it, **"Danger-defective-do not use".** Lock the tool in a tool box and call your local Ramset Distributor for assistance.



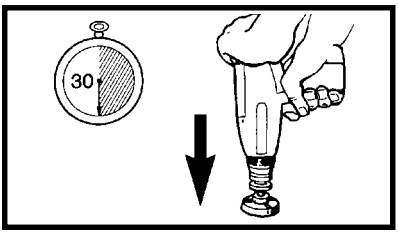

**USE SPALL GUARD WHENEVER POSSIBLE**




**ALWAYS HOLD THE TOOL PERPENDICULAR TO THE WORK SURFACE**



**NEVER DRIVE A FASTENER CLOSE TO AN EDGE**




**HOLD THE TOOL FIRMLY AGAINST THE WORK SURFACE FOR AT LEAST 30 SECONDS.**

**Your Ramset D45 tool uses only the Ramset fasteners and loads shown below or listed for the tool in the Product Catalog.**

## ⚠ DANGER ⚠

Never use any other types of fasteners or disc loads in the D45 tool. Use of other types of fasteners or loads may cause unintentional load discharge, damage the tool, cause poor fastening performance, or create a risk of seroius injury to the operator or bystanders.

## FASTENERS

**.300 HEAD PLASTIC FLUTED DRIVE PINS**

**.145 Shank Diameter in Shank lengths from 1/2" to 2 "**

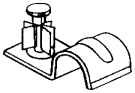
**1/4"-20 Threaded studs**

**.145 Shank Diameter in Shank Lengths of 1/2" and 1" and thread lengths of 1/2", 3/4" and 1"**

**.300 HEAD TOP-HAT DRIVE PINS**

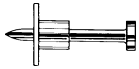
**.145 Shank Diameter in Shank Lengths from 1/2" to 1"**

**CONDUIT CLIP ASEMBLIES**



**For 1/2" and 3/4" Diameter Conduit with 1" premounted fastener**

**.300 HEAD PLASTIC FLUTED DRIVE PINS WITH 7/8" WASHER**



**.145 Shank Diameter in Shank Lengths from 1" to 2 1/2"**

**.300 HEAD POWER POINT PLASTIC FLUTED DRIVE PINS**

**.150 Straight Shank in Shank Lengths from 1/2" to 7/8"**
**.150 / .180 Step Shank in Lengths from 1" to 1 7/8"**

**CEILING CLIP ASSEMBLIES**

**Ceiling Clip with 1" or 1-1/4" premounted .145 shank pin and Ceiling Clip with 1" or 1-1/4" premounted .150/.180 shank pin.**

## LOADS

**Ramset D60/45 disc loads are specially made for use in the D45 Tool.**

**D60/45 DISC LOAD**

| POWER LEVEL | CATALOG NUMBER | LOAD COLOR | CASE COLOR |
|---|---|---|---|
| 2 | 2D60/45 | Brown | Brass |
| 3 | 3D60/45 | Green | Brass |
| 4 | 4D60/45 | Yellow | Brass |
| 5 | 5D60/45 | Red | Brass |

**The power level of the loads is indicated by the number marked on each box, the color of the box and the color on the tip of each load. As the number increases, the power level also increases.**

**Always perform the center punch test described on page 3 to test the base material.**

**Always make a test fastening using the # 2, Brown, power level first. If more power is required to set the fastener, use the next higher power level until the power level necessary to drive the fastener is reached.**

## FASTENING APPLICATIONS

Your Ramset tool can be used for a wide range of fastening needs in a variety of base materials. Reading and following these important fastening guidelines will help you get the best results from your tool, fasteners, and powder loads, as well as help you perform these fastening operations safely and effectively.

Powder actuated fastenings are permanent fastenings so attempting to remove a fastener from concrete or steel may result in serious injury.

### Fastening to Concrete

When fastening into concrete, always maintain a minimum spacing of 3" between fastenings and 3" from any free edge. Concrete thickness should be at least three times the intended penetration depth into the concrete. The primary exception to the 3" edge distance can occur in a sill plate application where, by necessity, the edge distance is reduced.

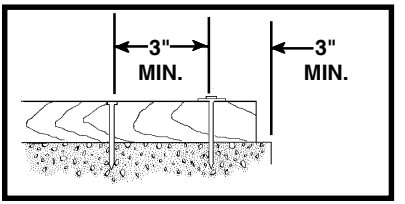
Driving fasteners too close to an edge or too close to each other can cause the concrete edge to fail or fasteners to fly free.

### Fastening to Concrete Block or to Masonry Walls

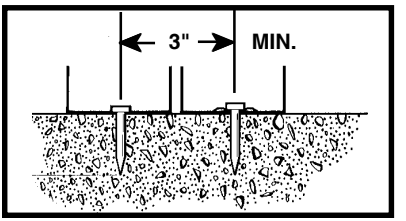
While this application is not recommended, when used, it is necessary to take care to observe a 3" edge distance to avoid cracking the block and over penetration of the fastener to avoid a loss of holding value. Fastenings may be made into the horizontal joint but not into the vertical joint.

### Fastening to Steel

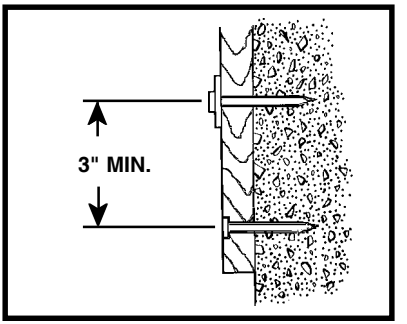
Your Ramset tool can be used for fastening on the flat surfaces of structural steel.
When fastening into steel, always maintain a minimum spacing of 1-1/2" between fastenings and 1/2" from any edge.



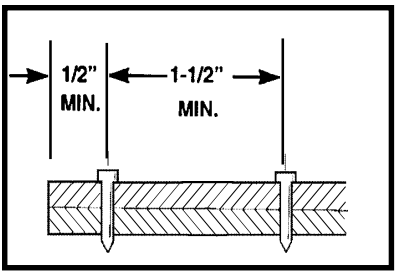

**SPACING**
**WOOD TO CONCRETE**




**PENETRATION - THIN GAUGE**
**METAL TO CONCRETE**



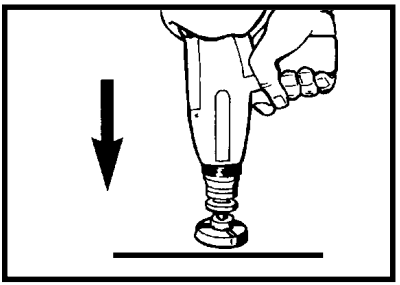

**SPACING - FURRING**
**STRIP TO CONCRETE**




**SPACING**
**STEEL TO STEEL**

## TOOL OPERATION

**Daily Function Test**
**Always check the tool first to make sure that it does not contain a load disc or fastener.** Test the tool several times by depressing the muzzle bushing fully on a hard surface and pulling the trigger. You should hear an audible click as the firing pin releases.



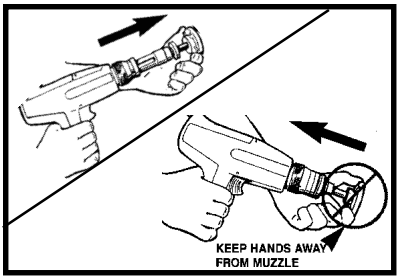
**PERFORM FUNCTION TEST WITH EMPTY, UNLOADED TOOL**

## OPERATING THE D45 TOOL

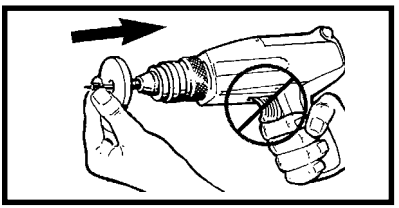
1. After checking to be sure that the tool is not loaded, point it in a safe direction and be sure that the barrel is fully extended. This assures that the piston is in position for the next fastening. Use the spall guard every time possible to minimize the risk of being struck by flying debris.

2. With finger off the trigger, place the fastener, point out, into the muzzle end of the tool until the point end is inside the muzzle. **NEVER** load a fastener with your finger on the trigger. **DO NOT** use excessive force when inserting a fastener. **STOP** immediately if excessive force is required, inspect the barrel to find out why the fastener is not entering the muzzle freely. **DO NOT** continue loading unless the problem is corrected.

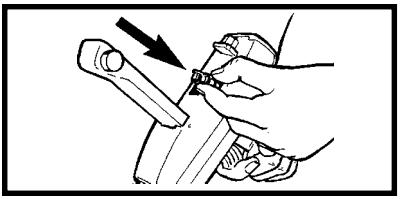
3. With the tool pointed in a safe direction and finger away from the trigger, open the cover by pressing the side button and insert a load disc into the slots in the receiver housing.




**OPEN BARREL AND CLOSE TO SEMI-CLOSED POSITION**



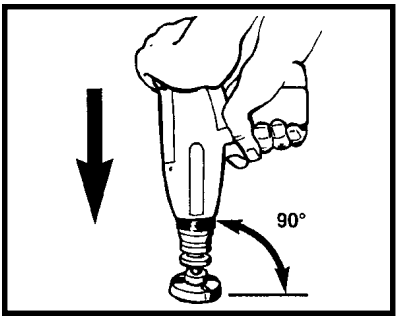
**INSERT FASTENER INTO THE MUZZLE END OF THE TOOL WITH THE POINT OUT**



**INSERT LOAD DISC INTO THE SLOTS IN THE RECEIVER HOUSING**

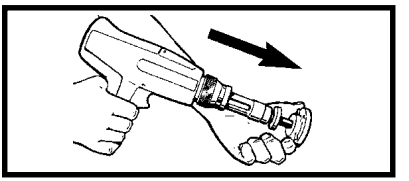
4. Close the cover and be sure it is locked. **NEVER** attempt to make a fastening with the tool cover in the open or unlocked position.

5. Hold the tool perpendicular (90°) to the work surface with both hands and press firmly to fully depress the tool. Maintain firm downward pressure on the tool with both hands and pull the trigger to drive the fastener. **DO NOT DEPRESS THE TOOL AGAINST ANYTHING OTHER THAN THE INTENDED WORK SURFACE.** Holding the tool firmly in place will produce more consistent fastening quality and minimize tool wear or damage.



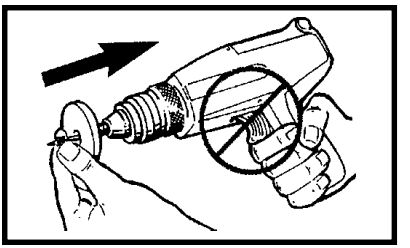

**HOLD THE TOOL FIRMLY AND PERPENDICULAR TO THE WORK SURFACE**

6. After making the fastening , with the tool pointed in a safe direction pull the barrel fully open.This resets the piston for the next fastening. **Always keep fingers and other body parts away from the muzzle end of the tool.**



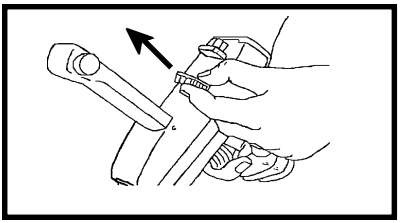
**FULLY OPEN THE BARREL TO RESET THE PISTON**

7. Insert another fastener in the muzzle end of the tool as before and the tool is ready for the next fastening. Keep your finger off of the trigger until the tool is in position to drive the fastener.



**CLOSE THE BARREL AND INSERT THE NEXT FASTENER**

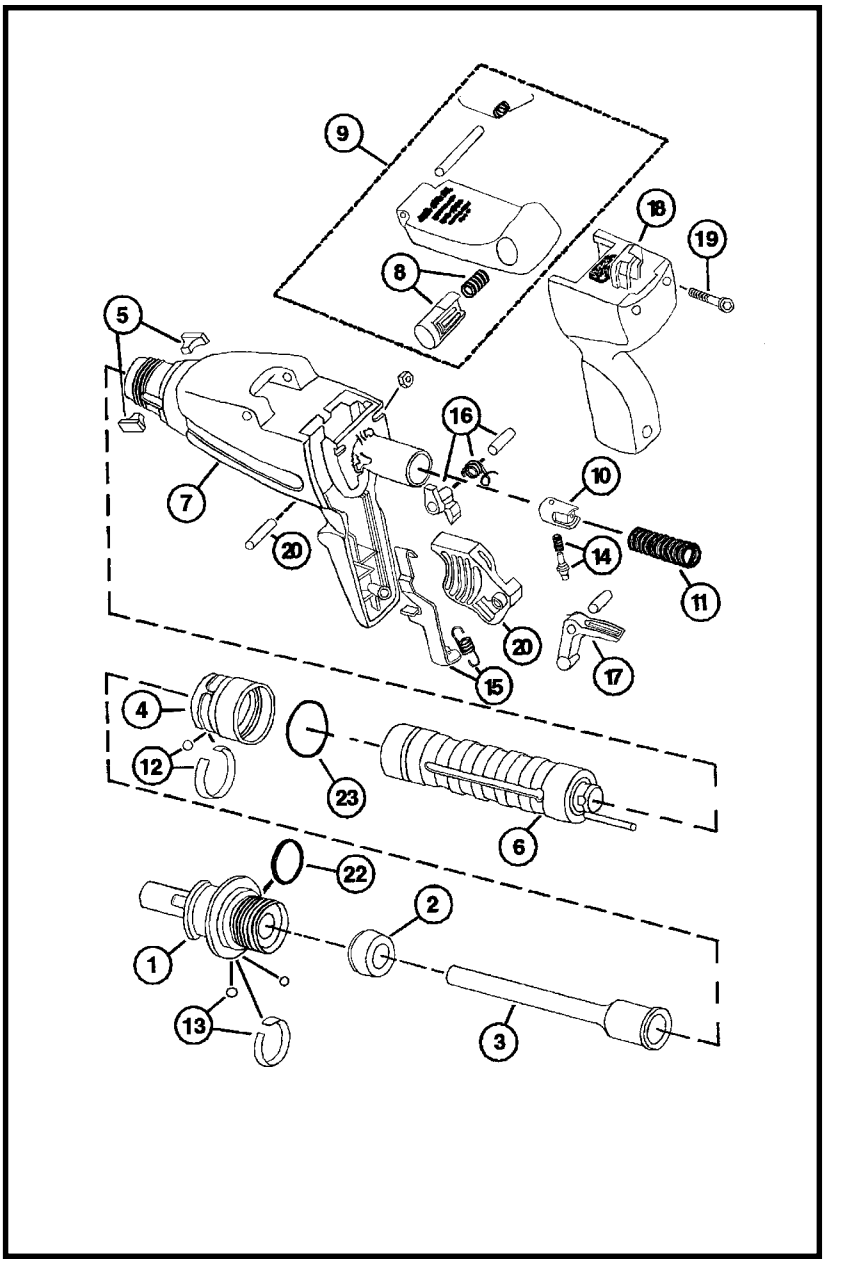
8. To remove a used or partially used load disc from the tool, open the cover and lift out the load disc. **NEVER** try to remove a jammed or stuck load disc. Should a “jammed” load disc occur, call your local Authorized Ramset Distributor for technical assistance.



**REMOVE THE LOAD DISC**

REFER TO PARTS SCHEMATIC FOR PROPER ASSEMBLY OF PARTS

| | | |
|---|---|---|
| - Overdriving of fasteners | - Excessive power | - Change to next lower power level load disc color and number. |
| | - Soft base material | - Check base material (see page 3) |
| - Tool fails to fire | - Failure to depress completely | - See " Tool does not completely depress" |
| | - Excessive dirt buildup on breech face not allowing proper penetration of firing pin | - After following misfire procedure, check firing pin indentation on load. Clean breech face |
| | - Firing pin and/or breech damaged | - Replace damaged parts |
| - Tool does not completely depress | - Misassembled or damaged parts | - Check all parts in the receiver for damage or improper assembly. |
| - Reduction or loss of power | - Piston not being returned to the full rear position | - Barrel must be pulled completely open to properly reset the piston. |
| | - Worn or damaged piston or piston ring | - Replace worn or damaged parts |
| | - Worn or broken pawls | - Replace pawls |
| - Tool cannot be cocked or opened | - Excessive dirt buildup | - Clean tool thoroughly |
| | - Damaged or bent piston | - Replace piston |
| | - Broken or damaged parts | - Tag tool with warning "Defectine- Do Not Use" Place in a locked container and contact your ITW Ramset/Red Head representative for service. |
| - Failure to index disc | - Disc not inserted in tool correctly or is damaged | - Check load disc Properly dispose of damaged disc (see page 6) |
| | - Damaged indexing mechanism | - Contact your ITW Ramset/Red Head distributor for assistance. |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## D45 TOOL PARTS LIST

| KEY | PART NO. | DESCRIPTION |
|---|---|---|
| 1 | 323300 | MUZZLE BUSHING ASSEMBLY |
| 2 | 316520 | BUFFER |
| 3 | 306450 | PISTON |
| 4 | 323310 | BARREL RETENTION COLLAR ASS'Y |
| 5 | 316540 | PAWL ( 2 ) |
| 6 | 323390A | BARREL ASSEMBLY |
| 7 | 323940 | RECEIVER ASSEMBLY |
| 8 | 308490 | LATCH BUTTON ASSEMBLY |
| 9 | 13510 | COVER ASSEMBLY |
| 10 | 307890 | FIRING PIN ASSEMBLY |
| 11 | 13593 | FIRING PIN SPRING |
| 12 | 312590A | COLLAR RET. RING AND BALL |
| 13 | 323050A | RETENTION CLIP AND BALLS |
| 14 | 316570 | FIRING PIN PAWL AND SPRING |
| 15 | 13518 | INDEXING LEVER AND SPRING |
| 16 | 13516 | TRIGGER LOCK ASSEMBLY |
| 17 | 316580 | SEAR ASSEMBLY AND PIN |
| 18 | 309280 | REAR HANDLE ASSEMBLY |
| 19 | 308860 | REAR HANDLE SCREWS AND NUTS |
| 20 | 13509 | TRIGGER AND PIN |
| 21 | 12266 | SPALL GUARD ( NOT SHOWN ) |
| 22 | 351000 | MUZZLE BUSHING O-RING |
| 23 | 351001 | RETENTION COLLAR O-RING |

## MAINTENANCE

**IMPROPERLY MAINTAINED TOOLS CAN CAUSE SEROIUS INJURIES TO TOOL OPERATORS AND BYSTANDERS**

**CLEAN TOOL DAILY**

**Always make sure the tool is not loaded before performing any service or repair and always wear safety goggles when cleaning or servicing the tool.**

**NORMAL CLEANING**

All front end parts shown in the disassembly section are to be cleaned daily with a good detergent oil and wire brush. Remove all dirt and carbon buildup and wipe parts dry with a clean rag. Check all parts for wear or damage before reassembly and replace or repair any worn or damaged parts.

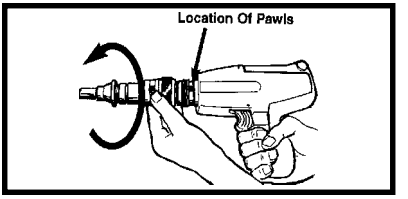
**COMPLETE CLEANING / GENERAL MAINTENANCE**

Heavy use or constant exposure to dirt and debris may require that the tool be cleaned more extensively. Complete disassembly and cleaning of all parts may be necessary to restore the tool to normal operation. General maintenance should be performed every six months or more often if the tool is subjected to heavy use. Contact your authorized Ramset Distributor for assistance.

**ALWAYS FUNCTION TEST THE TOOL AFTER PERFORMING ANY SERVICE.**
**SEE PAGE 9 FOR DETAILS ON THE FUNCTION TEST.**

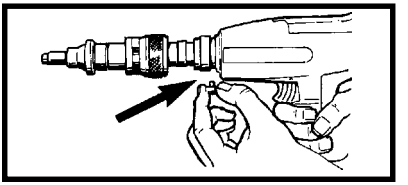
## TOOL DISASSEMBLY

**1.** Unscrew the barrel retention collar and slide it away from the tool housing. Handle the tool carefully after the sleeve is unscrewed to prevent the two barrel pawls from falling out.



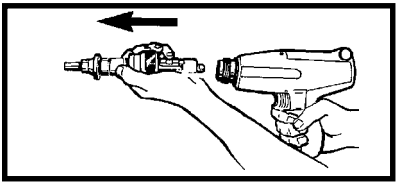

**UNSCREW THE BARREL RETENTION COLLAR**

**2.** Remove the two pawls from the slots in the sides of the tool housing.



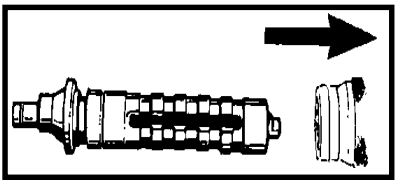
**REMOVE BOTH PAWLS**

**3.** Slide the barrel assembly out of the tool body. Note the position of the slots on the side of the barrel assembly.



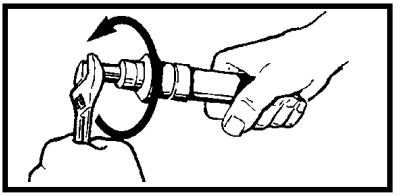
**SLIDE BARREL ASSEMBLY OUT OF THE TOOL BODY**

4. Slide the barrel retention collar off of the barrel assembly.



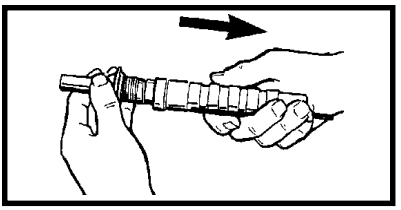
**SLIDE RETENTION COLLAR OFF OF THE BARREL**

5. Using an adjustable or 13 mm open end wrench, grip the flats on the end of the muzzle bushing and unscrew the muzzle bushing from the barrel assembly.



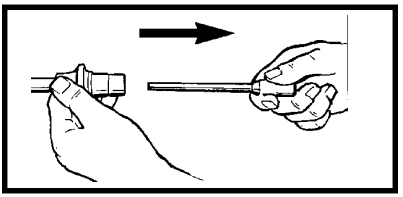
**UNSCREW MUZZLE BUSHING FROM BARREL ASSEMBLY**

**5.** Slide the barrel assembly away from the muzzle bushing.



**SLIDE BARREL ASSEMBLY FROM MUZZLE BUSHING**

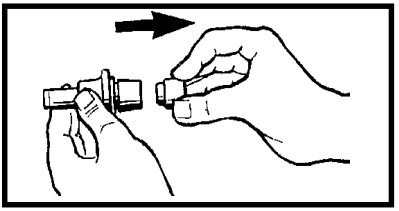
6. Remove the piston from the muzzle bushing.



**PULL PISTON OUT OF THE MUZZLE BUSHING**

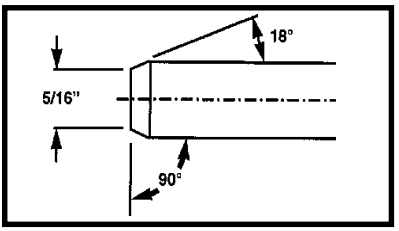
7. Remove the buffer from the muzzle bushing.

8. Inspect all parts for wear or damage and clean or replace as required. Use detergent oil and cleaning brush. Wipe parts dry before reassembly. **WEAR SAFETY GOGGLES WHEN CLEANING TOOL PARTS.**



**PULL BUFFER OUT OF THE MUZZLE BUSHING**

**9.** Check the piston tip for mushrooming or other deformities, and grind flat. The tip of the piston must be 90° to the shank and grinding must only be done by qualified personnel. The overall minimum length of the piston must not be less than 5 11/16". When less than this length, the piston must be replaced to avoid tool damage.




**GRIND PISTON TIP FLAT AND BEVEL THE TIP EDGE AT 18°**

10. Reassemble the tool in the reverse order of disassembly.

**ALWAYS PERFORM THE DAILY FUNCTION TEST BEFORE USING THE TOOL AFTER CLEANING OR SERVICING.**

## WARRANTY

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MANUFACTURERS' INSTITUTE INC.

**THE D45 TOOLCOMPLIES WITH OSHA REQUIREMENTS AND WITH ANSI A10.3 SPECIFICATIONS**

**FOR TOOL REPAIR SERVICE CONTACT YOUR LOCAL AUTHORIZED ITW RAMSET/RED HEAD DISTRIBUTOR OR CALL THE ITW RAMSET/RED HEAD TOOL REPAIR DEPARTMENT AT 1-800-354-7432**

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**(630) 350-0370**

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